

THE ROLE OF THE DIVISION DEEP OPERATIONS CELL
IN FORCE PROJECTION OPERATIONS

A thesis presented to the Faculty of the U.S. Army
Command and General Staff College in partial
fulfillment of the requirements for the
degree

MASTER OF MILITARY ART AND SCIENCE

by

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B.A., Trinity University, San Antonio, Texas, 1982

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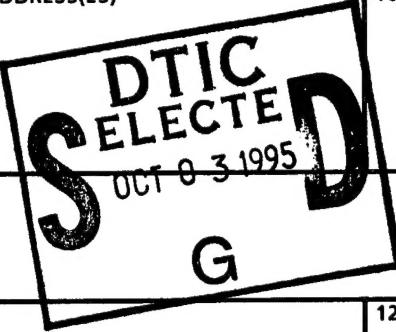
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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff college or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

THE ROLE OF THE DIVISION DEEP OPERATIONS CELL IN FORCE PROJECTION OPERATIONS by MAJ Charles C. Bush, USA, 80 pages.

This study investigates the role of the division deep fires cell in a force projection operation. The concept is that given changes in the operational environment, new weapon systems, target acquisition systems, and command and control systems, the division deep operations cell faces complex new challenges.

This study examines the relationship between the division and corps, and the relationship between the division and the joint air component commander.

This study supports adding personnel to the Division Deep Operations Center (DDOC) to support the additional burden of conducting the deep battle on a nonlinear battlefield. It also recommends that the Army develop permissive fire support coordination measures to facilitate the rapid engagement of deep targets.

To support the increased emphasis on deep operations, this study recommends that division doctrine be modified to emphasize the growing trend towards the predominance of the deep battle in division operations, and the role of the DDOC in accomplishing the division commander's intent for deep operations.

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LIST OF ABBREVIATIONS

AAR	After Action Review
ACC	Air Component Commander
AC-130	Air Force Special Operations Aircraft
ADOCS	Automated Deep Operations Coordination System
AH-64	Apache Attack Helicopter
AO	Area of Operations
ASAS	All Source Analysis System
ASOC	Air Support Operations Center
ARFOR	Army Forces
ATACMS	Army Tactical Missile System
ATARS	Advanced Tactical Reconnaissance System
ATO	Air Tasking Order
A2C2	Army Airspace Command and Control
BAI	Battlefield Air Interdiction
BCTP	Battle Command Training Program
CALL	Center for Army Lessons Learned
CARL	Combined Arms Research Library
CFE	Conventional Forces Europe
CNR	Combat Net Radio
CPX	Command Post Exercise
C2	Command and Control
C3CM	Command, Control and Communications Counter Measures
DDOC	Division Deep Operations Cell
DIVARTY	Division Artillery
DTAC	Division Tactical Operations Center

EAC	Echelons Above Corps
FLOT	Forward Line of Troops
FSCL	Fire Support Coordination Line
FM	Field Manual
FSE	Fire Support Element
GPS	Global Positioning System
G3	Assistant Chief of General Staff for Operations
HQ	Headquarters
JFACC	Joint Force Air Component Commander
JFC	Joint Force Commander
JFLCC	Joint Force Land Component Commander
J-STARS	Joint- Surveillance and Target Attack Radar System
MLRS	Multiple Launch Rocket System
MMAS	Masters of Military Arts and Science
MSE	Mobile Subscriber Equipment
NATO	North Atlantic Treaty Organization
NAVSTAR	Navigation System Timing and Ranging
NCA	National Command Authority
NFA	No Fire Area
OH-58D	Observation Helicopter
OOTW	Operations Other Than War
RIPL	Reconnaissance Interdiction Phase Line
RSF	Red Sand Front
SAMS	School for Advanced Military Studies
SEAD	Suppression of Enemy Air Defense
SINCGARS	Single Channel Ground-Airborne Radio System

TACP Tactical Air Control Party
TTP Tactics Techniques and Procedures
UAV Unmanned Air Vehicle

TABLE OF CONTENTS

APPROVAL PAGE.....	ii
ABSTRACT.....	iii
ACKNOWLEDGMENTS.....	iv
LIST OF ABBREVIATIONS.....	v
CHAPTER	
1. INTRODUCTION.....	1
2. REVIEW OF LITERATURE.....	14
3. RESEARCH METHODOLOGY.....	25
4. THE EFFECT OF MODERNIZATION AND CHANGES IN THE STRATEGIC ENVIRONMENT ON THE DDOC.....	28
5. THE RELATIONSHIP BETWEEN THE DIVISION, CORPS AND JOINT FORCES.....	44
6. CONCLUSIONS AND RECOMMENDATIONS.....	65
ENDNOTES.....	73
BIBLIOGRAPHY.....	76
INITIAL DISTRIBUTION LIST.....	80

CHAPTER 1

INTRODUCTION

The topic of this thesis is, "What is the role of the Division Deep Operations Cell (DDOC) in force projection operations?" The basis for this question comes from the current discussion of what role the division plays in the deep battle. Since the publication of the first AirLand Battle FM 100-5 in 1982, divisions and corps have been involved in applying combat power deep to disrupt and or destroy enemy forces before they come into direct contact with ground maneuver forces. Since that time the fielding of new weapon systems, target acquisition systems and the evolution of a significantly different operational environment have changed the nature of the deep fight. The problem that confronts the division commander is not a lack of capabilities, but competing joint capabilities in the execution of the deep battle. Complementary systems which are controlled from a higher or joint echelon may operate in the commander's sector. The problem in defining the role of the DDOC is twofold. The first part is the compression of the battlefield operationally and tactically due to increased weapon ranges and improved acquisition systems. The second concerns the environment in which the Army now operates. As the battle is increasingly non-linear, it becomes less geographically structured. As the Army turns its doctrinal

focus away from fighting the large Soviet based armies and start looking at regional contingencies, the way it views the battlefield is different. Rather than a battlefield structured to interdict strong subsequent echelons, the deep mission on the battlefield may now be used to accomplish specific tasks that may have a different purpose than the close fight. The corps is no longer the only element that can accomplish that fight.

Improvements in weapon and acquisition system capability give the corps and division commanders in a joint operation similar capabilities to fight deep. The attack systems normally available to both the division and corps are ground maneuver units, field artillery, attack helicopter units, and electronic warfare assets. The corps also has aerial interdiction assets and may allocate some to the division. Although the organic division acquisition systems are less capable than those of the corps, which has access to a Joint-Surveillance and Target Attack Radar System (JSTARS) ground station module, Quickfix, and Firefinder radars, the division may receive sufficient capability to synchronize joint assets and conduct targeting in an operational and tactical environment compressed by modern technology.

The battlefield has changed. Greater lethality produces an empty battlefield as units disperse for protection. Smaller forces require joint operations and joint tactical engagements to have a decisive effect. As the military operates as a joint force in smaller theaters against less capable forces, the size of the Army force may not be what is normally considered an operational

size force. According to FM 100-5, "The intended purpose, not the level of command, determines whether an Army unit functions at the operational level."¹ If there are divisions and corps operating against a dispersed enemy in constricted battlespace, the divisions and corps capabilities become mixed and roles become less clear. The division may not need a corps to shape the battlefield in the way that was necessary when it faced large multi-echeloned forces. These changes in operational environment also affect the battlefield framework. Instead of a specific tactical space in which to conduct deep operations, deep operations are now purpose based to support accomplishment of a specific task for the maneuver commander.

Research Question

The primary research question of this thesis is: What is the role of the Division Deep Operations Cell in force projection operations? Subordinate to the primary question are some secondary questions that need to be answered.

1. How have recent changes in the strategic environment and modernized equipment changed the doctrinal basis on which divisions conduct "deep" fires? This question deals with the kind of extended range operations the division may conduct and how these operations are influenced by modern communications equipment, improved target acquisition and long range joint weapon and acquisition systems.

2. What is the relationship between the division, corps, and joint forces when the corps brings its full range of assets as

well as joint capabilities to the battle? The purpose of this question was to study some of the battlespace conflicts that the division experiences when conducting extended range operations. This study looked at the boundary between division and corps to see if there is a dead space and how this may be affected by fire support coordination measures or forward boundaries.

3. What does the DDOC accomplish for the division? This study looked at how the DDOC improves the fires of the division and what organic and supporting tools are available for the division to conduct deep operations. It also examined why a division needs a deep operations cell in addition to the division Assistant Chief of General Staff for Operations (G3) and Fire Support Element (FSE).

4. How will the role of the DDOC change in the future? Based on what this study discovers about the DDOC, how might the anticipated near term changes in acquisition systems and delivery systems change the DDOC's role yet again?

Background

Army doctrine does not acknowledge the need for a specific organization in the division to conduct deep operations. The deep fight was never supposed to be a distinct battle; the deep battle was just part of the close, deep, and rear framework that the staff used to focus their efforts on the battlefield. Given the recent changes in joint and army doctrine and technology, their potential advantages create an additional burden beyond the current capability of the G3 operations cell and the FSE. The deep fight

mixes current and future operations into one deep battle plan. This plan should be synchronized with (but may be separate from) the current battle being fought in the Division Tactical Operations Center (DTAC) and the future battle that is being planned in the G3 operations cell.

With its current assets, the relatively minor division deep battle has become very complex. The multitude of acquisition systems combined with the many tools to reach deep (Air Force, Army Tactical Missile System (ATACMS), Apache attack helicopter (AH-64), self-propelled artillery, Multiple Launch Rocket System (MLRS)) makes planning, synchronization, and execution extremely time consuming and leadership intensive. The targeting methodology has become even more complex and time consuming. Instead of just decide, detect, and deliver, now the Army decides, detects, tracks (as part of detect), delivers, and assesses the damage. The result of this complexity is that the division deep battle is not being fought by the G3 and FSE. Instead it is often conducted by an ad hoc organization trying to make things happen without the resources to effectively accomplish the mission.

In 1982-1986 AirLand battle doctrine, the deep battle was a tactical level battle in a clearly defined corps/division area that was designed to set the condition for success in the close fight. In 1993 Army Operations, the deep battle is a tactical and possibly operational level fight designed to take the advantage from the enemy. The area is not clearly defined because the enemy is different, and the goal could be operational rather than

strictly tactical. With potentially decisive effects at an operational level and lack of defined deep areas, the ad hoc approach to division deep fires is not acceptable.²

Definitions

Deep Battle. Operations designed in depth to secure advantages in later engagements, protect the current close fight, and defeat the enemy more rapidly by denying freedom of action and disrupting or destroying the coherence and tempo of its operations.³

Deep operations center. Battle command and control facility which exists to support the successful execution of deep operations. Provides a focused centralized activity for planning and coordination of all deep operations for the headquarters.⁴

Fire Support Coordination Line. A permissive fire support coordinating measure established by appropriate land force commander-normally corps or higher.⁵

Force Projection. Force projection is the demonstrated ability to rapidly alert, mobilize, deploy, and operate anywhere in the world. It is a key element of power projection.⁶

Force XXI Operations. The concept for the evolution of full-dimensional operations for the strategic army of the early twenty-first century.

Future. Equipment and doctrine that could be in use by 2010.

Linearity. Refers to the conduct of operations along lines of operations with identified Forward Line of Troops (FLOT).⁷

Non-Linearity. In the land context, nonlinear operations are operations conducted from selected bases of operations, but without clearly defined lines of operations. In such operations, land forces tend to focus more on their assigned objectives and less on their geographic relationship to other friendly forces.⁸

Role. Role is defined as the battlefield function of the division deep operations center. Specifically, this covers what the DDOC should be expected to accomplish as part of a joint force, operating within the realm of Army Operations doctrine as established in FM 100-5.

Targeting. The process of selecting targets and matching the appropriate response to them, based on operational requirements and capabilities. Targeting is performed at all levels by forces capable of delivering fires or attacking targets with both lethal and nonlethal disruptive and destructive means.⁹

Targeting Methodology. The targeting methodology used is the decide-detect-deliver process laid out in FM 6-20-10. This process is used to methodically plan and execute the engagement (by lethal or nonlethal means) of targets that are deemed important by the force commander. In practice at the division level, this methodology has been modified to add target tracking after a target is detected, and damage assessment after the target has been engaged to ensure the engagement resulted in the desired fractional damage. This methodology is critical to the planning

and execution of deep fires, since it is used to ensure that the targets attacked are the ones that are important to the commander.

Limitations

The only limitation to conducting this research is that there are currently many "schools of thought" on how some specific parts of division deep fires should be done. This attitude is usually based on the individual or organizational perspective. A division commander and his staff may feel that they can best accomplish the deep fight with their assets, because they can then attack the targets that they desire and shape the enemy in a way that they feel would best support their close battle. On the other hand, a corps commander and staff may want to engage the same set of targets in the same area for other reasons. In addition to this are service related conflicts. The Air Force sees the deep battle differently than the Army. The Air Force looks at the deep battle from a strategic/operational outlook, while the Army views it from an operational/tactical standpoint.

Delimitations

This study is focused on U.S. Army division deep operations, conducted as part of a joint command.

This research is limited to post-1982 discussions/articles on deep attack because the doctrine has changed so much since that time. Pre-1982 literature does not consider how the army fights under the AirLand battle concept. Many of the conflicts described in this paper are a result of the Army's

transition to AirLand battle doctrine, and its subsequent evolution to AirLand Operations doctrine. By concentrating on post-Conventional Forces Europe Treaty (CFE) literature, the information is oriented on operations other than war (OOTW) and on the difficulties associated with modern joint warfare.

This research does not go into depth on the possibility of deep ground maneuver. This has been adequately covered in other works; according to FM 71-100, deep maneuver is rarely done because it is a very costly operation in terms of men and equipment.

This paper does not resolve the conflict between the Army and Air Force on management of airspace above the ground commander's battlespace. This conflict is best resolved by close coordination between the Joint Force Land Component Commander (JFLCC) and the Joint Force Air Component Commander (JFACC) and if necessary by the Joint Force Commander (JFC). It would be ideal if this were worked out in joint doctrine, but this is unlikely to occur in the near future. This research attempts to define the role the division deep operations cell in this conflict by clarifying what the division should accomplish with its deep operations.

Significance of the Study

There are numerous issues under study that affect how the division fights the deep battle. The transition from a forward deployed army to a force projection army makes the resolution of these issues more important than ever to avoid conflict between

services and facilitate joint operations. Not having forces established in theater, the JFC may not have the luxury of several months to sort out who is responsible for what part of the battlefield and how the coordination will happen. In addition to basic changes in army operations, the US Army is evolving from an industrial age army to a technology based army. Our Army is dealing with this change as it becomes a force that is increasingly capable of operating over large areas with greater effect. What division deep fires accomplish for this technology based army has yet to be determined. This study is important to further the understanding of how the division fights in the future so that, when deployed to protect the United States' interests, it will be ready to fight the war of tomorrow, not the wars of yesterday. The conflicts over fire support coordination measures and forward boundaries affect where the division is positioned and what its responsibilities are in the deep battle.

The issue of the fire support coordination measures delineating the separation between division deep and corps deep battle has been a subject of much discussion since Desert Storm. As corps and divisions gain access to more capable equipment they are able to engage the enemy farther from the FLOT. This enables them to better shape the battlefield to win the close fight. As the range of army systems increases, they come in conflict with, among others, Air Force systems that have traditionally executed deep attacks. One of the techniques for separating surface-to-surface and air-to-surface fires has traditionally been the FSCL.

For various reasons corps have been making the FSCL a restrictive measure; according to fire support doctrine, it should be a permissive measure. This is further confused by North Atlantic Treaty Organization (NATO) doctrine using the FSCL as a restrictive measure, and even using it as a No Fire Area (NFA). In addition to misuse of the FSCL, corps, divisions and NATO forces have been using non doctrinal terms, such as the Reconnaissance Interdiction Phase Line (RIPL) and the Deep Battle Line (DBL). Because these terms are non doctrinal, they cause confusion when used in joint operations. This thesis examines the relevance of these control measures in light of the joint operational environment.

Another issue in the establishment of operational environment is the use of forward boundaries. This has two related issues: whether the division should conduct deep fires, and how the division commander fights in and controls his battlespace. Although there has been some recent work on the issue of forward boundaries, it has not been applied to how a division conducts deep fires and what effect it will have on the capability of the division commander to influence the enemy. This study looked at the way the division operates in a force projection environment and how the forward boundaries influence the ability of the division to conduct operations within their battlespace.

The recent publication of FM 100-5 and the changes in threats will have a tremendous impact on the way the Army fights.

This paper is an attempt to reconcile some of the changes with how the Army uses the divisions deep fires cell.

Research Approach

The methodology used to support this thesis was to use several scenarios to describe a division's role as the ground force component in a joint, force projection operation, given some of the recent changes in the battlefield environment and conflicts between competing force capabilities. This study analyzed how the division deep operations cell would operate in these environments, and how it would adjust to changes in equipment and the strategic environment. This paper uses resources from the Command and Control (C2) Battle Lab, the Depth and Simultaneous Attack Battle Lab, and Battle Command Training Program (BCTP) to look at both what is expected from the division in the future and what is being done now during warfighter exercises.

Anticipated Outcomes

This author anticipates that in the future, divisions will execute more extended range operations than they currently conduct. This will require a more sophisticated DDOC than is used now. More extensive coordination will be required to attack the enemy in depth, but technology will provide the capability to do it faster with less risk to friendly forces. If the division is operating with a corps, the division will still be responsible for extended range operations to cover the space between the corps extended range operations, and the division close battle. The

division will probably work under the corps, but will independently conduct specific operations in support of the corps operational objectives.

CHAPTER 2
REVIEW OF LITERATURE

Introduction

This chapter will review books and appropriate doctrinal and tactics/techniques and procedures (TTP) manuals. Additionally, it will review previous Master of Military Art and Science (MMAS) theses, recent professional articles, and other applicable sources. These include applicable studies conducted by the Center for Army Lessons Learned (CALL) and BCTP after action reviews. Numerous doctrinal sources describe the current battlefield framework and the role of the division in that framework, but are somewhat dated since the publication of the 1993 FM 100-5 Operations and subsequent doctrinal developments. Theses, monographs, BCTP after action reviews, professional articles and books represent the current thought and lessons learned from units in the "field." These sources can furnish insights into how a division conducts deep operations now and how they may fight in the future.

Literature Review

The remainder of this chapter is divided according to the following scheme: (1) Books, (2) Doctrine (FM 100-5, FM 100-15, FM 71-100, FM-6-20 series), (3) Unpublished MMAS theses and School

for Advanced Military Studies (SAMS) Monographs, (4) Articles in professional journals, (5) Lessons learned products (BCTP, Center for Army Lessons Learned), and (6) Other sources.

This chapter's discussion of literature and sources is not exhaustive due to the large number of potential resources; however, additional sources found in the endnotes and the bibliography of this thesis can supplement the reader with additional information.

Books

There are many books that have been published dealing with the development of deep battle theory. Much of the work is oriented towards the concept of deep maneuver, the best example being Richard Simpkin's book Race to the Swift¹⁰. This tends to lean towards the Soviet offensive view of deep battle as penetration, envelopment and destruction, or the United States' defensive view of shaping the battlefield to ensure success in subsequent engagements. His work supports the concept that deep battle is done at both the division and corps level, and that it is an important part of successful offensive and defensive operations. On the other end of the spectrum is Toffler's new book, War and Anti-War¹¹, which describes a new type of warfare environment in which technology reduces the size but increases the effectiveness of armies. The Tofflers credit AirLand battle and its associated deep battle with much of the success in the Gulf War. In either case there is a good base of information to support this investigation into tactical deep operations.

Doctrine

Government documents are a particularly good primary source of information on tactical deep battle. A good starting point for this subject is in the Joint publications. The 9 September 1993 *Joint Pub (JP) 3-0, Joint Operations*, describes some procedures and considerations to support operations planning. It provides information to help commanders and staffs reach decisions on joint fire support and interdiction in this area. Understanding joint doctrine is important to understanding the role the division will play as a part of a joint operation. Many of the capabilities that the division needs to conduct the deep battle comes to it as part of a joint operation. The definition of the FSCL in this document drives much of the discussion on specifically what the FSCL does on the joint battlefield. The vague definition serves to perpetuate the confusion as to what the FSCL is supposed to accomplish. One particularly useful publication is Joint Publication 1-02, The Department of Defense Dictionary of Military and Associated Terms. This manual, as its name implies, places subordinate services (at least in theory) in a common frame of reference.

The individual US military services publish doctrinal manuals which address numerous war-fighting issues, among them battlefield framework and issues related to the fire support arena. The Army deals with these issues in the greatest detail since many of its systems function in multiple roles throughout the depth of the battlefield. Key to this study is FM 100-5,

Operations (1993). This manual clearly describes the battlefield framework and the interrelationship of organizations within that framework.

Understanding the changes in the 1993 FM 100-5 and how new war fighting concepts can fit into the doctrine provides a base from which the Army can anticipate new war fighting concepts for the army division. FM 100-5 describes characteristics of offensive and defensive operations that are conducted at the operational and tactical levels of war. This is important for establishing the framework used in this paper to look at the future employment of division deep fires. Analysis of the definition of battlespace is also important to determine how a division looks at the area in which it will fight and what it expects to accomplish in that area. FM 100-5 was followed by TRADOC PAMPHLET 525-5 Force XXI Operations. This pamphlet describes the conceptual foundations for the conduct of future operations in war and operations other than war (OOTW) involving the US Army of the early twenty-first century. The concepts of extended battlespace and simultaneity directly support the concept that the division will fight nonlinear battles with the compression of traditional divisions between strategic, operational, and tactical levels of war. The pamphlet states that "Recent U.S. operations show that deep battle has advanced beyond the concept of attacking the enemy's follow-on forces in a sequenced approach to shape the close battle, to one of simultaneous attack to stun, then rapidly defeat the enemy."¹²

This change in focus and lower force levels will certainly increase the responsibilities for deep fires in the division. FM 100-15, Corps Operations, and FM 71-100, Division Operations (1990 versions). These manuals are useful in outlining the basic framework, but they are not particularly clear in defining the deep battle role for the division. FM 100-15 does not address the role of the division in terms other than to fight the corps' close fight. The corps' close fight is mainly the current battles and engagements of its major maneuver units, together with the combat support and combat service support activities supporting them.

The corps' close operations include the deep, close, and rear operations of its committed divisions.¹³ FM 71-100 describes the division deep operation in much the same terms as the corps' deep operations. Division deep operations are those conducted against the enemy's uncommitted forces or resources to prevent him from using them where and when he wants to on the battlefield.¹⁴ There are initial drafts (July 94) of FM 100-15 and FM 71-100. These manuals incorporate the changes from the 1993 FM 100-5. The FM 71-100 recognizes the divisions role in the deep battle and that the DDOC needs to be a full time cell. The Army manual that provides definitions for the force is FM 101-5-1 Operational Terms and Symbols. This field manual uses most of the same definitions that are found in Joint Publication 1-02, but also provides definitions for terms that are relevant but not joint and therefore not found in the joint publications. The primary source of US Army fire support doctrine is found in the FM 6-20 series of

manuals. FM 6-20 provides a general overview of the fire support system and how it operates in AirLand battle. It discusses doctrinal principles of field artillery employment and organization for combat. FM 6-20-30, Tactics, Techniques, and Procedures for Corps and Division Operations, addresses fire support issues pertaining to Corps and Division Operations. FM 6-20-30 is particularly useful in defining fire support procedures for Corps and Division operations. FM 6-20-10 discusses the targeting methodology that the Corps and Division fire support elements use to support their respective organizations. It is particularly useful in describing the personnel and equipment available to conduct deep operations and the tactics, techniques, and procedures used to accomplish this mission. FM 6-20-10 is also about to be updated. It has been modified based on recent changes brought about by Desert Storm and BCTP lessons learned. Its discussion of the targeting process and the additional requirements to track high payoff targets and to assess the effects of target engagements, support the argument that even with automated data processing support, targeting is an extremely complex, time-consuming process. To add deep operations in a nonlinear, extended battlespace greatly adds to the burden of the deep operations cell. The process outlined in FM 6-20-10 supports the argument that additional full time personnel are needed in the DDOC.

There are several other Army field manuals that are useful for this research. FM 90-28, Tactical Air Planning of Ground

Operations, and FM 100-103, Army Airspace Command and Control in a Combat Zone, discuss the inter relationship between army and air force assets in support of deep operations. One related manual is the Corps Deep Operations Handbook (1990) published by the combined Arms Center at Fort Leavenworth, Kansas. This manual is meant to be used with FM 100-15, and describes tactics, techniques, and procedures for conducting deep operations at the corps level. It is also applicable to the division, as the deep operations are often similar.

Professional Journals

Of particular importance for this thesis is the body of articles that have been produced in the past few years. Many of these articles are found in military journals such as the AirLand Battle Future, Army, Airpower Journal, Field Artillery, and Military Review. Parameters also has some good articles that deal with this topic. Douglas Macgregor's article "*Future Battle-the Merging Levels of War*",¹⁵ supports the concept of more and more overlap in the levels of war as capabilities increase. Thomas Garrett's article "*Close Air Support: Which Way Do We Go?*",¹⁶ helps establish the role of the Air Force in the changing environment in which our divisions operate.

Military Review is particularly helpful in providing timely relevant articles on FM 100-5 and deep operations. An article by General Frederick Franks, explains the changes in the battlefield framework; that it will probably vary from linear to

nonlinear, with a separation of units in time, space and distance.

Future commanders will have to choose the framework for a given set of METT-T conditions.¹⁷ An article by Colonel Thomas Cardwell in the April 1984 issue clearly lays out the competition for control of deep battlespace as one of the unresolved problems created by AirLand battle doctrine.

Finally, Field Artillery has numerous articles dealing with deep operations and depth and simultaneous attack, the April 1993 issue on deep operations is particularly good. An article by Major General Fred Marty discusses the use of deep operations to facilitate accomplishing operational and tactical objectives. Attacking throughout the depth of the operational area puts enemy forces and functions at risk.¹⁸ An interview with Lieutenant General Jerry Rutherford, then commander of V Corps, discusses how he uses the FSCL and RIPL to delineate the deep battle responsibility between division and corps.¹⁹ The division deep battle is up to the FSCL, the corps deep battle is from the FSCL to the RIPL, and V Corps coordinates with the Air Force if it wants to fire beyond the RIPL. In effect, these two measures function as forward boundaries.

Unpublished MMAS Theses and SAMS Monographs

In addition to professional journals, there are a number of unpublished papers produced by U s Army Command and General Staff College, Army School of Advanced Military Studies, and Army War College students. Major Peter Corpac's thesis, "Airland Battle Future: Fires How Do You Do It?"²⁰ is particularly useful

in describing the fundamental principles of employing fires in the deep battle. He says that with smaller forces, deep fires will be the only way to effectively defeat the enemy. MAJ Mark Eshelman's thesis, "Ground Commander Control of Battlefield Air Interdiction",²¹ discusses how Battlefield Air Interdiction (BAI) should be employed by the ground commander, and use of the FSCL. He recommends that the RIPL be used instead of the FSCL, and that BAI should be controlled by the ground commander.

Lessons Learned Products

Another good category of source data is information collected as a result of lessons learned. This includes both information from combat operations, and information from exercises. The most applicable combat operation is Desert Storm. This operation will be very useful for data on the relationship between a Corps and its subordinate divisions. The VII Corps After Action Review (AAR) located in the Combined Arms Research Library (CARL) at Fort Leavenworth, is probably the most useful. The AARs conducted by the major US Army service schools are also of value.

Exercise AARs are also very useful for examining tactics, techniques and procedures of corps and divisions. The Center for Army Lessons Learned has published several newsletters dealing (in part) with division deep operations. These observations are based on numerous BTCP exercises and are very relevant and timely. Many of the questions addressed in this study are questions that come up time and again during BTCP exercises as divisions work to

define their battlespace in relation to the battlespace of the Corps Commander.

Other Sources

An important source of information is the wealth of information that exists in the people assigned at Fort Leavenworth, Kansas and Fort Sill, Oklahoma. The individuals involved in writing FM 100-5 are a great source of information. BCTP observers are very knowledgeable of division deep operations as they happen today. The Command and Control Battle Lab here, and the Depth and Simultaneous Battle Lab at Fort Sill are also working to improve the effectiveness of deep fires and will be very helpful.

Summary

Discussion of the future of deep fires at the division level is virtually absent from the available literature. There is a lot of information that deals with the DDOC, but does not specifically address what responsibility the division has for deep fires. Much of the information is based on corps deep fires, and rarely mentions the DDOC. Some books discuss how the future may look, and recent doctrinal manuals address the generic framework of current and future battlefields. Many of the articles, theses or monographs provide relevant exploration of the issues facing a division conducting the deep battle now and projected into the future. The practical application of a division conducting deep fires in future scenarios is shown in BCTP and CALL documents, as

are some of the problems that the division has employing effective deep fires.

CHAPTER 3

RESEARCH METHODS

The first part of the research question looks at the affect of modernization on division deep fires. The second part looks at the relationship of the division to corps and joint forces. To examine the DDOC in these situations, I used two scenarios that would push this to the farthest end. Therefore, the methodology used to support this thesis was to compare my hypothesis, that division deep operations cells now operate with greater impact and autonomy, against two scenarios of a division operating in a joint, force projection operation. The first scenario is the division operating at the tactical level of war, and the second scenario is the division operating at the operational and tactical level. In both cases the divisions are operating in a non-linear environment. By looking at how the commander develops the full potential of the combat power model in these scenarios, we can examine the role of the DDOC in that environment.

The first scenario is the deployment of a corps to the fictional Island of Sandia (Figure 1). The Xth (fictional) Corps is deployed as the Army Force (ARFOR) of a joint force. The Xth Corps deploys with two divisions to conduct combat operations. The joint force commander has been given the strategic objective

of re-establishing the legitimate government of Sandia. The corps' operational objectives are to defeat the military forces of the Red Sand Front (RSF), destroy the RSF support base, destroy RSF supplies, protect Sandia ports, cut RSF lines of communications to disrupt resupply, and cut off retreat.

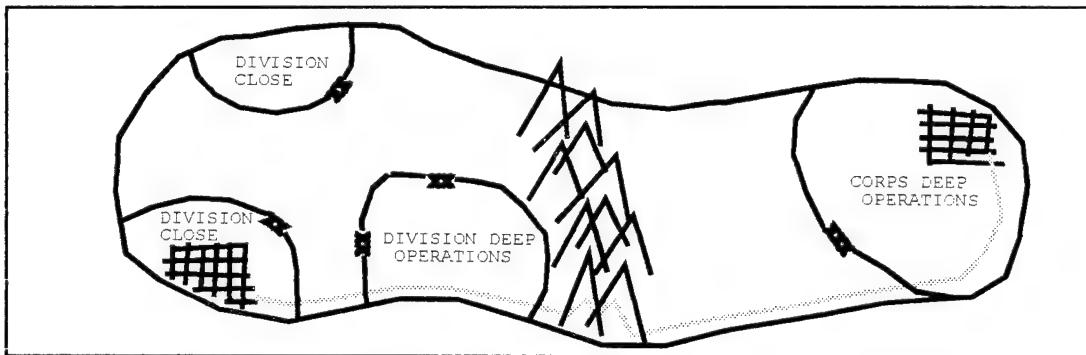


Figure 1. Sandia Scenario

The second scenario is based on a slight modification of our mission in Somalia. The modification for this scenario is that the 10th Mountain Division conducts overt combat operations as part of its mission to accomplish the joint force commander's operational and strategic objectives in Somalia. The strategic objective was to support the distribution of relief supplies. Operational objectives were to open the ports, open the airport, and establish secure lines of communications throughout the country. The commander of the 10th Mountain Division was the Army Force (ARFOR) Commander for the Joint Force Commander, and was responsible for all land operations in Somalia. The division broke the ARFOR area into humanitarian relief sectors for command and control of the area. If the operation had degraded to the

point that it was more war than humanitarian relief, the division would have been responsible for conducting combat operations without the support of a corps headquarters. In this non linear environment, the division could use its access to superior acquisition assets and firepower to defeat enemy forces. By directing the employment of the division firepower and assets from the JFC, enemy forces could be dispersed or destroyed.

In chapter 4, the role of the DDOC in these two scenarios is analyzed given the effect of modernized equipment, and changes in the strategic environment. In chapter 5, this study analyzes how the division relates to the corps and joint forces. The scenarios are used to demonstrate situations in a force projection environment where the division deep operations cell would be influenced by corps and higher forces.

CHAPTER 4

THE EFFECT OF MODERNIZED EQUIPMENT AND CHANGES IN THE STRATEGIC ENVIRONMENT ON THE DDOC

As stated in chapter 1, force projection is becoming increasingly important as the United States uses its military power to act in crises. As (arguably) the one superpower in the world, the United States uses this power to contribute to deterrence and to enhance regional stability. Military power projection is one of the elements of national power that the National Command Authority (NCA) can quickly apply in a crisis. A US Army division may be deployed as part of a joint team to support this operation. In this situation the division may be responsible for fighting a tactical (and possibly operational) level battle. This is a big change for Army divisions whose doctrine is based on fighting the Cold War as a subordinate element of a corps or army. Not only has the way the division is used changed, but the environment has also changed since the introduction of AirLand Battle doctrine in the early 1980's.

In this new environment, the enemy has changed, the force with which the United States fights has changed, and the equipment which it uses to fight with has changed. In their book War and Anti-War, the Tofflers do a good job of building a framework within which to understand these changes and to begin to study how

they will affect future war. The Tofflers' description of "Third Wave Warfare" accurately portrays some of the changes that are occurring in the military today.²² The large industrial age multi echeloned armies that characterized the previous World Wars and the cold war are simply too expensive to maintain in this global economy. The multi echeloned threat from the former Soviet army no longer exists, and is too expensive to recreate. The Gulf War in 1991 demonstrated that large is not always better, as Iraq's large expensive army was smashed by forces with modern technology. With advanced technology, even though the United States Army is smaller, it is more lethal than ever. As the Army deals with these changes, it is important to review its doctrine. One aspect of this review is how the division fights.

Division Operations

One of the army division's key functions is to fight the deep battle. Units fight the deep battle to simultaneously attack the enemy throughout the depth of his formations and to set the conditions for a successful close fight. General Fredrick Franks stated in a December 1993 article in Military Review, that the Army's new doctrine has established the concept of depth and simultaneous attack. "The idea of presenting the enemy with a series of simultaneous attacks throughout the depth of the battlespace is an integral requirement for decisive victory."²³ For a division this is nothing new. FM 71-100 Division Operations states that success is achieved by not only defeating the enemy in the close fight but by simultaneously attacking throughout the

depth of his forces.²⁴ What is new is the added importance given to fighting the deep battle and the amount of effort that the division puts into accomplishing depth and simultaneous attack. The division conducts deep operations against uncommitted enemy forces in support of corps or Echelon Above Corps (EAC) operations, or it may commit organic and supporting division elements to do deep operations in support of the division tactical plan.

In the offense, the division fights the deep battle initially to isolate, immobilize, and weaken defenders in depth. In the defense, the deep battle aim is to prevent the enemy from concentrating overwhelming combat power. Major objectives are the separation and disruption of attacking echelons, degradation of the enemy's fire support, command and control and communications, combat support and combat service support. By attacking deep the division can limit the enemy's freedom of action, alter the tempo of the operation in favor of the division, slow or interrupt the enemy commanders decision cycle, and isolate the close operation. There are two types of deep attack: maneuver and fire.

Deep attack with maneuver

Traditionally the division fights the deep battle with fires as an economy of force operation and dedicates the maneuver forces to the close fight. The attraction of using maneuver forces in the deep fight is the decisive nature of maneuver in the deep battle. It is one thing to an enemy commander to have deep fires systematically degrading his combat power; it is entirely a

different matter to have a strong mobile force turning his flank and destroying his forces in detail before they are committed to the fight. With advances in weapon system capability, the division now has forces that can conduct deep strikes against enemy forces, but still does not have the C2 to fight the close fight, the deep fight, and plan for the future battle. To be successful, deep ground maneuver requires the synchronization of supporting assets to include both Army and Air Force assets.²⁵ A strong DDOC would give the division the capability to synchronize and conduct simultaneous attacks. It is possible that future technology will give the division commander such improved command and control that he will be able to conduct these operations with his current staff or a smaller staff. However, these systems do not currently exist. The systems that we have help with the synchronization of deep operations but require 2 to 3 full-time operators per terminal, and operators do not come with the systems. In the near term, the additional intelligence will add to the workload of the staff as it targets enemy forces acquired with improved acquisition systems.

For the successful conduct of deep maneuver FM 71-100 lists six considerations:

- Control of the FLOT
- Opening a hole
- Additional security, CS and CSS
- Additional firepower
- Plans for sustainment
- Plans for linkup and extraction.²⁶

Our advances in acquisition and lethality give us a better capability to accomplish the first four operations, and improved

C2 will serve to ensure that the operation is planned. The real key to successful maneuver is protecting the deep force. Real-time down-link of airborne sensors will give the division commander the capability to maneuver that deep force so that it focuses on its objective and is not surprised by an enemy force.

The disadvantage with deep maneuver is that it can be very costly in terms of men and equipment. It puts a large force at risk if the enemy is able to respond to the attack and has sufficient maneuver forces or firepower to defeat it. Thus because of the risk, it is not the preferred form of deep attack. The ideal option is deep attack with fires.

Deep Attack with Fires

Deep attack with fires (including attack helicopters) is a cost-effective way to attack the enemy before he gets into the close fight, without decisively engaging ground forces. Deep attack is an economy of force effort that gives the division the capability to simultaneously attack the enemy throughout the depth of his formations.

The importance of deep operations became really apparent to the US Army divisions through the Battle Command Training Program (BCTP). Although deep operations had been considered important to a division, the doctrine stated that successful division-level combat operations required the division to weight its efforts and primarily concern itself with the division's close operations.²⁷ Therefore, the division's deep operations were an economy of force effort and were conducted primarily by fires and

command, control, and communications countermeasures (C3CM).²⁸ Advances in technology give the division an increasing capability to influence the battle with deep operations. BCTP exercises require that divisions conduct an aggressive deep battle. To "win" against the opposing force, the deep battle must be successful. This trend is reflected in the draft of the new FM 71-100, Division Operations. In the future, our deep capabilities may develop to the point that the deep battle is the main effort; the enemy is destroyed deep and the close battle is simply to secure the ground. Improvements in technology move the Army towards this type of capability.

Equipment Modernization and the DDOC

As equipment developed for fighting AirLand Operations comes into the force structure, the division's capability to fight deep has improved greatly. With improvements in intelligence and target acquisition assets, deep fires assets, and command, control and communications systems, the DDOC has more tools than ever to see, talk, and fight deep.

Intelligence and Target Acquisition Assets

Although intelligence and target acquisition assets were identified as a weakness during Desert Storm, divisions are rapidly gaining access to more comprehensive, accurate and more timely intelligence systems. National intelligence systems, including human, space and airborne platforms will provide detection and early warning for the commanders. Various airborne

platforms, such as the Guardrail, the Advanced Tactical Reconnaissance System (ATARS) and the Joint Surveillance and Target Attack Radar System (JSTARS) will allow high resolution, accurate, real time target information covering large areas of the battlefield. This information and intelligence data from national systems can be down-linked quickly to tactical commanders. The fielding of the All Source Analysis System (ASAS) will provide the division and even the brigade real time access to Corps and EAC collection assets. ASAS speeds up the intelligence dissemination process by digitizing message traffic and automating many of the standard communications interfaces that support intelligence operations. ASAS allows the All Source Collection Agency to disseminate intelligence products to users at all echelons.

Even as their intelligence support from higher improves their capabilities, ground commanders will also receive more sophisticated systems to acquire, track and direct fires against the enemy. In addition to their reconnaissance units commanders will have improved observation helicopters (OH-58Ds and Apache Longbow systems), and small unmanned aircraft with high resolution imagery and other target acquisition systems on board. Unmanned Air Vehicles (UAV) are able to track and facilitate the attack of targets without risking manned vehicles.

Command, Control and Communications

Tremendous advances in navigation, communications, and data transfer systems will greatly enhance the future command, control and communications of the division commander. Commanders

will know the exact location of their forces and be able to use secure communications to direct the battle. The Navigation System Timing and Ranging (NAVSTAR) and Global Positioning System (GPS) allow tactical units to always accurately locate themselves. The GPS was one of the reasons for the success of US forces in Operation Desert Storm, because it allowed units to accurately maneuver through a virtually featureless desert.

Communications are also greatly improved with the Mobile Subscriber Equipment (MSE) and Single Channel Ground-Airborne Radio System (SINCGARS). MSE provides digital communications from the corps rear, forward thru the division's command posts to the division's maneuver battalions. These communications include telephone, facsimile, mobile radio telephone, data transmission, and Combat Net Radio (CNR) access. MSE can interface with tactical satellite radio systems, and can link higher elements such as theater Army or national command authorities. This communications structure provides the capability to link division shooters to EAC acquisition assets.

SINCGARS provides corps and division a communications means independent of MSE. SINCGARS replaces older FM equipment and provides secure voice and data transmission, a broad frequency spectrum, and frequency-hopping capability. The primary use of SINCGARS is for voice C2 for the brigade commander and below. The secondary role is to provide a means of data transmission.

Deep Fires Assets

Improved deep fire assets provide the commander the ability to attack and destroy enemy formations at long range before they can engage his maneuver forces. Until recently, attack aircraft were one of the few effective assets available for deep attack. However, AH-64 attack helicopter battalions, equipped with hellfire missiles, have proven their capability to move long distances and attack with direct fire weapons. They can move quickly to strike deep, rearm, and attack again from another location. Aircraft can deliver precision guided munitions and destroy any target, but are vulnerable to enemy air defenses. Despite their vulnerabilities to air defenses and weather, tactical air strikes and attack helicopters will continue to play an important role in deep fires, especially with an effective Suppression of Enemy Air Defense (SEAD) program fired by artillery systems.

The multiple Launched Rocket System (MLRS) and Army Tactical Missile System (ATACMS) are modern systems that provide a deep attack capability against stationary and moving targets. The current MLRS system can hit targets out to 30 kilometers and the ATACMS can reach well beyond 100 kilometers. Planned improvements for MLRS and ATACMS will increase the ranges to 40 and 200+ kilometers respectively. For the first time, these systems will give the division commander fires with operational reach. Smart munitions and terminally guided munitions will also increase the effectiveness and responsiveness of current systems. Precision

long range fires will likely be the major killer on the future battlefield. These field artillery missile and howitzer systems are able to destroy and disrupt enemy formations without having to battle formidable air defense systems.

Impact on the DDOC

The impact of all this new technology on the DDOC is that it greatly extends the deep battlefield and consequently the complexity of division deep operations. Where the division deep battle used to extend to 30 kilometers, it is now realistic to extend it to around 100 kilometers. Using this example in the Sandia scenario, the division could extend its battlespace to cover the entire eastern sector of the country. The improved intelligence and target acquisition assets provide a clearer picture of the enemy situation in the region. This information is consolidated through the ASAS so that additional analysts are not needed in the division to cover this larger area.

By being able to acquire and engage the enemy forces before they come into contact with US forces, the division commander is able to use his superior firepower to protect his forces from surprise attack, and maintain the initiative. By tracking the enemy forces from a greater range, the division commander will be able to maneuver his forces into a advantageous position to defeat any enemy forces that remain after the deep battle.

The advances discussed in this scenario demonstrate the division's increased capability to fight a deep battle. With

these weapons the division commander can find, engage, and destroy enemy forces almost anywhere on the battlefield. If a target can be seen, it can be killed. To survive in this environment of increased lethality requires the dispersal of forces--both friendly and enemy.

Lethality and the Empty Battlefield

The increased lethality of these modern weapons makes the battlefield a more dangerous place. Wider dispersion of forces resulting in the "empty battlefield" will continue to be the norm, putting greater responsibility on each level of force. As weapons become more lethal at greater ranges, units must disperse to avoid destruction. Direct fire ranges are approaching 4 kilometers, attack helicopters are accurate at 6 kilometers, and cannon and rocket artillery can both range 30 kilometers. With this kind of range a division can cover large areas and still provide interlocking fires for the defense or massing of fires in the offense. This increases the depth, breath, and height of the battlefield.

TRADOC Pam 525-5, Force XXI Operations describes this larger battlefield as the extended battlespace. It states:

This extension of the battlespace with fewer soldiers in it is an evolutionary trend in the conduct of war. The continuing ability to target the enemy, combined with rapid information processing and distribution, smart systems, and smart munitions, will accelerate this phenomenon. As armies seek to survive, formations will be more dispersed, contributing to the "empty battlefield."²⁹

This extended battlespace will give the division more responsibility to set the conditions for the close fight. If even

deployed, corps assets will be spread throughout the large area of operations or massed to support the main effort. Given the increased capability of the division, with little augmentation from corps, the division could deploy and fight a major operation without a complete corps. Army tactical units fighting a deep battle with technologically advanced lethal weapons is similar to what the Tofflers describe as Third Wave warfare. This type of warfare suits the unique capabilities of the Army division, and its improved capabilities to fight the deep battle in a changed battlefield environment. This increased lethality and the empty battlefield change the way the division fights deep.

The Division and the Non-Linear Battlefield

The TRADOC pamphlet 525-5 states that:

. . . recent U.S. operations show that deep battle has advanced beyond the concept of attacking the enemy's follow-on forces in a sequenced approach to shape the close battle, to one of simultaneous attack to stun, then rapidly defeat the enemy.³⁰

This change in focus and lower force levels will certainly increase the responsibilities for deep fires in the division. The simultaneous attack of enemy forces spread out on a non linear battlefield is significantly more difficult than the attack of subsequent echelons advancing in accordance with doctrinal templates. Fortunately, advances in information management and distribution will facilitate the horizontal integration of battlefield functions and aid commanders in tailoring and arranging forces to meet these challenges.³¹ These advances in

technology will change the battlefield as did wire and radio in World War I, when the need to disperse forces for survivability pushed the development of combat communications systems. Wider dispersion of forces resulting in the "empty battlefield" will continue to be the trend, putting greater responsibility on each level of force. This will in turn push the development of more efficient acquisition systems, and C2 capability to handle the synchronization of the acquisition effort. Part of this improved C2 structure must include an improvement in the organization that synchronizes the deep fight on the non-linear battlefield.

For several years now, futurists have predicted that the battlefield will be characterized by groups of forces separated by gaps, i.e. nonlinear in nature.³² Nonlinear relates not only to the size of the battlefield, but also the purpose of the fires. The deep battle does not always have the aim of shaping enemy forces for follow-on close battlefield operations.³³ The most important deep targets are those which are the greatest threat to the division commander, or which best support his tactical (or operational) plan. Ultimately, the attack should focus on the enemy's center of gravity, through attack of the center of gravity's vulnerabilities wherever they may be on the battlefield. This attack of disparate and separated targets increases the responsibility for the division deep battle cell. Instead of a relatively small linear area tucked between the FLOT and the FSCL, the division deep battle (which might be the division main effort) covers a larger area and is tied to executing specific tasks for

the division commander, usually attacking the mission vulnerable nodes important to destroying the enemy center of gravity. Because of the larger areas involved at each echelon of the joint force, this increased mission should be carried out as part of a division capability. If a contingency is so large that a corps headquarters is deployed as part of the joint force, the area of operations will likely be just as large for any division involved, and it is possible that the division may not be vertically nested into the corps deep fires plan. This lack of mutual support results in the division conducting autonomous operations.

An example of this type of operation is the Sandia scenario. The division will fight multiple engagements in different areas to defeat the enemy forces. These engagements will be focused to accomplish the purpose of the operation as stated in the commanders intent. Like our experience in Panama, these engagements are scattered throughout the battle space, but are all designed to accomplish a single operation. With the corps in Sandia working to accomplish a specific goal, the division independently operates within its battlespace, conducting its purpose-based operations.

The idea of autonomous operations is not that the division will fight without a higher headquarters, but that the division will be responsible for the ground campaign. It may operate outside the capability of the corps to influence a division's operations, or in the event that a division is deployed without a supporting corps headquarters, it will always have the support of

a joint headquarters and will fight as the land component of a joint force.

An example of a division operating without a corps headquarters happened recently. When the 10th Mountain division deployed to Somalia, the CG 10th Mountain Division was the Joint Force Land Component Commander (JFLCC) and was responsible for all land operations in Somalia. The division broke the ARFOR area into humanitarian relief sectors for command and control of the area. If the operation had degraded to the point that it was more war than humanitarian relief, the division would have been responsible for conducting combat operations. In this non linear environment, the division could use its access to superior acquisition assets and firepower to defeat enemy forces. By directing the employment of the division firepower or assets for the JFC, enemy forces could be dispersed or destroyed. This would have set the conditions for the brigades to fight and win the close battle quickly with minimal casualties. While this scenario assumes that we would deploy with superior acquisition and attack assets such as the UAV and the Air Force's AC-130 attack aircraft, some of the negative experiences we had in Somalia reinforce the need to deploy as a combined arms team, so that if the situation degrades into war, we have readily available firepower to protect our force.

One way to quickly increase the firepower of the division in a rapidly changing situation is to add additional airpower. The divisions' access to air support is normally linked to the

corps Tactical Air Control Party /Air Support Operations Center (TACP/ASOC). In situations where the division is operating without a corps headquarters, we need to establish procedures to link the division tactical operations center directly to the Battlefield Coordination Element (BCE) and Tactical Air Control Center (TACC) in the air component headquarters. This link would ensure that the division is tied into the theater air-ground system, and division requests for support would be considered for inclusion in the Air Tasking Order (ATO). This direct link to theater air support gives the independent division capabilities similar to the corps.

Operating independently on a non linear battlefield the division can strike deep with fire and maneuver. With a smaller more lethal force, it is increasingly likely that divisions will operate as the ARFOR of a joint force. As our recent experiences in Desert Storm, and BCTP exercises show, the increased capabilities of the division and corps is causing doctrinal conflict. Chapter 5 addresses the relationship between the division and corps in this quickly moving environment in which we operate.

CHAPTER 5

THE RELATIONSHIP BETWEEN THE DIVISION, CORPS, AND JOINT FORCES

With the predominance of joint operations, the difficulties in synchronization of attack on enemy forces have become more complex. Although a hierachal chain of command minimizes conflict, different doctrines, equipment and TTP make joint operations difficult.

One of the challenges concerns the basic differences between ground force and airpower doctrine. Airpower proponents believe that given sufficient time and resources, airpower can defeat the enemy, and there is no need for army forces to fight it out on the ground in a long costly battle. The ground forces, however, have always had to fight to take the ground. The end result is that the Air Force has focused mostly on strategic attack and the Army worked to develop its close battle capabilities. This status quo began to change with the advent of AirLand battle, and the development and fielding of the weapon systems that make AirLand battle work. AirLand battle has been controversial since its introduction, because the Army now wants to control the deep battle that the Air Force had previously called its own.³⁴

The relationship between the Army and Air Force worked well when we faced the giant Soviet army. Despite the questions

over control of the deep battle, the Services faced so many forces that there were plenty of targets to go around. With the demise of the Soviet Union, all the services were (are) caught struggling to maintain their places in the defense structure, and to justify the huge costs required to maintain current force structure and develop modern weapon systems. With the limited worldwide threats to our Armed Forces, the Services now possess more overlapping capability than ever. Joint operations are important, but the survival and modernization of individual services dominate in the day-to-day reality. This conflict of overlapping capability affects how an Army division conducts deep operations. A large source of conflict between the Army division and other parts of our force structure are the overlapping joint capabilities that exist when we deploy forces to react to a contingency. These competing joint capabilities affect the synchronization of deep assets working to defeat the enemy force. The first overlapping capabilities occur within Army forces. The second occurs between ARFOR, and other DOD assets, primarily the Air Force.

Division Versus Corps

In the case of conflicts between the division and corps, there is not much of a problem since the division commander works directly for the corps commander. Through numerous BCTP exercises, the Army's ability to synchronize the deep battles has been refined. While the basic relationship does not change, the details of the relationship are evolving. When the Army planned for linear battles against multiple-echelon forces, the corps'

deep battle directly affected the division. The division would pick up the deep fight as the corps' close fight began. Now as the technological revolution gives the division a capability similar to that of the corps, the relationship changes and will change more as additional systems are fielded. In the future, divisions and corps will work together in a non-linear battlefield to attack the enemy force throughout the depth of the battlespace. By attacking command, control and communications assets, we will slow down the enemy decision cycle, giving our military an even greater ability to systematically destroy his forces. The synchronization of efforts within the corps is focused by the corps commander's intent (purpose) and works to create a joint asymmetrical fight by denying the enemy the ability to fight a synchronized combined arms fight.

Using the Sandia scenario, the ARFOR commander has taken advantage of the modern capabilities of the division, and given the division commander an extended battlespace within which to employ his assets. In this scenario, the battlespace is clearly defined by geographical boundaries that allow for a clear separation of effort. Synchronization of effort is gained through joint planning, and the intelligence visibility gained with ASAS. The corps acquires targets through the joint intelligence center and the division accesses the targets with ASAS. Although the corps is focusing its deep battle efforts on a different sector, the intelligence and air support links provide continuous support to the division concurrently. Having the division fight part of

the joint force deep battle results in overwhelming simultaneous attacks that quickly destroy the enemy's capability to influence the close battle. With the division linked to the same assets as corps, it has a similar capability. By assigning an area to the division, the corps is able to cover twice the area without an overwhelming number of targets for the targeting cell to process. This leveraging of the ability of the division enables us to dominate our battlespace, and links the operational and tactical fight into a seamless operation.

Air Force/Joint Conflicts

As all services field modern acquisition and attack systems, each service becomes more capable and these capabilities overlap. One area is the ability to acquire and destroy targets in the deep battle. Because of the lack of any real air threat, it is generally accepted that the US Air Force will gain air superiority or even supremacy relatively quickly. With extremely capable air-to-ground attack systems tied in with airborne acquisition, the Air Force also has systems to fight the deep battle. On the other hand, the Army, with access to the same acquisition systems, has a real interest in developing the deep battle to shape its upcoming close fight or to conduct simultaneous deep attacks. This overlapping capability results in conflict over who controls the joint deep fight. Prior to the Army's gaining long range systems such as the AH-64 Apache and ATACMS, there was never really any such conflict, because 30 kilometers was about as far as the Army could reach. Now with 150

kilometer ATACMS, 300 kilometer ATACMS coming and the Apache's ability to attack well beyond 100 kilometers across the FLOT, it is important to sort out who controls the deep battlespace that by default traditionally belonged to the Air Force.

The determination of which service attacks the enemy on what part of the battlefield determines where the division will pick up the deep fight, and what condition the enemy will be in at that point. As we begin to employ these overlapping capabilities, the Army's fire support system is designed for the integrated attack of targets with multiple assets. The question is how far out should the Army be looking?

There are two ways of looking at the battlefield, one based on time and another based on purpose. Determining battlespace based on time depends upon the ability of enemy forces to employ combat power, and the different capabilities of their airborne, armored, and light infantry forces. By conducting intelligence preparation of the battlefield, the Army tries to determine how fast the enemy will advance, and base our decision making on an event template tied to that timeline. A battlespace that is large enough to get a target planned on the Air Tasking Order (ATO) and attacked would be desirable. This allows the commander to plan over time, and to shape the battlefield to establish the conditions he wants for the close and deep fights. For the corps this is about 72 hours, and for the division about 48 hours. Forces outside that range would not be of concern to the corps or division commander and it would be left to the JFC to

determine their strategic or operational value and task an appropriate attack element. The problem with this type of linear planning is that it is difficult to re-adjust if the enemy force deviates from our plan. By letting the Air Force attack what they determine are high payoff targets and not using our assets while waiting for the enemy to come into our sector, we neither maximize the most efficient assets nor do we seize the initiative and overwhelm the enemy force.

The second option is to look at the purpose/intent of deep operations. The advantages to this are that it is effective in both linear and non-linear operations, and best suits the employment of multiple overlapping assets. Each system would be optimized to defeat the enemy at least cost, both in terms of the cost of the munitions fired, and in risk to the pilot. The battlefield would be organized such that each element could focus its attack to accomplish a specific purpose. Because of overlapping capabilities, all services would continue to support the entire battlespace, but one service would be the lead service and synchronize that attack of targets to accomplish its specific mission. This allocation would be based on the service's capability to best accomplish the mission. The attack on the Republican Guard during Desert Storm is a good example of this scenario type. If you isolated the specific area in which the Republican Guard was located, the task/purpose of the operations in that area would be to use firepower to destroy the Republican Guard so it could not interfere with the allied attack to free

Kuwait. Although the ground forces had weapon systems that could attack the target and could be attacked by the Republican Guard within 72 hours, the air component was the most cost effective way to engage a target over 100 kilometers from the FLOT. The JFACC should control this area, and any fires into it should be synchronized by the JFACC. Ground force assets could support this operation, and be responsive to JFACC requirements. Systems such as ATACMS could be task organized to provide direct support fires to support their attack. This would facilitate immediate SEAD, and joint precision strike of high payoff targets whose threat necessitates immediate attack. The JFACC would do targeting, clearance of fires and damage assessment as it worked to destroy the Republican Guard. If the JFACC chose to put ATACMS and attack helicopters on the ATO to execute this portion of the deep battle, that would be the air component commander's call since he would be responsible for the synchronization of fires during this phase of the operation. At a time determined by the Joint Force Commander, the Land Component Commander (LCC) may assume responsibility for the mission to attack into Iraq and finish the destruction of the Republican Guard. At this point the land and air would be controlled by the LCC. He would use the maneuver and firepower assets at his disposal to accomplish his task/purpose, to include assets provided by the Air Component Commander (ACC).

To protect the force, the LCC would establish airspace command and control measures to protect these friendly assets from fratricide. He would also establish necessary control measures to

facilitate the engagement of targets forward of the FLOT. Under current doctrine, the best way to facilitate engagement of deep targets is through the use of the FSCL.

Fire Support Coordination

The FSCL as a permissive fire support coordination measure is important to the division deep operation cell because it frees up a large area for effective engagement of targets. Restrictions on fires beyond the FSCL defeat its purpose. In US Army publications, the FSCL is considered a permissive fire support measure. Joint doctrine puts restrictions on the FSCL by requiring the force attacking beyond the FSCL to notify all affected commanders and give them sufficient time to avoid fratricide, both in the air and on the ground.³⁵ To provide fire support coordination measures that do facilitate the responsive delivery of fires, NATO has developed the reconnaissance and interdiction phase line (RIPL). The 8th Army in Korea, and III Corps in CONUS use the Deep Battle Synchronization Line (DBSL). The FSCL no longer facilitates the rapid engagement of targets with the requirement ". . .to inform all affected commanders in sufficient time to allow necessary reaction to avoid fratricide."³⁶ In current literature, the FSCL seems to be used as a phase line to divide the army area of operations (AO) from the air force AO. In effect the Army is giving the Air Force permission to attack targets as it sees fit in that area, while at the same time limiting its own ability to conduct uncoordinated attacks.

As we move into the information age we want to use our technological advantages to get inside the enemy's decision cycle and defeat him. Taking away permissive fire support coordination measures is a step in the wrong direction. But, with the continued concern for fratricide, there is no easy solution. Fortunately, advanced technology mitigates the clearance of fires problem by giving us communication and C2 systems that greatly decrease the time required to clear fires. In addition to using modern communications systems to facilitate the engagement of targets, different units are developing tactics, techniques, and procedures to improve the process.

One solution to the problem of rapid coordination for deep fires is to use a grid matrix to rapidly open and close predesignated boxes where deep aviation will operate. One example of this is the "kill boxes" used in Desert Storm. These kill boxes were 15-minute latitude by 15 minute longitude boxes assigned to Air Force command and control agencies to facilitate the rapid engagement of targets. Another example of this type system is described in a Field Artillery article by COL Neil Nelson and MAJ Thomas Kolditz. They recommend using the short-range air defense grid system matrix which is a standard matrix consisting of 400 10-kilometer squares with a name assigned to each square. They would further subdivide each 10-by-10 kilometer box down to 2.5 kilometer boxes. To coordinate fires in his zone during deep air operations, the commander would designate which boxes were not cleared for fires. After the operation, the zones

would again be opened up for permissive engagement of targets.³⁷ This type of system has proven its effectiveness for facilitating the rapid engagement of deep targets. Although not as simple as the FSCL, it is suitable for the complex joint operations that are becoming the norm, and would facilitate the safe use of close air support in the division and corps deep operations.

Even with advanced technology and TTP to facilitate the engagement of targets, there is still some use in doctrinal measures to divide the deep battlefield. With the battlefield growing in size and complexity, doctrinal terms to facilitate the separation of division, corps, and air force responsibilities would be useful. Although most major commands have some type of fire support coordination line to do this, it would make sense to standardize it for both Army and Joint operations. Forward boundaries are not necessarily the solution, because the division or corps may not have the capability to adequately cover their entire sector and may wish to open it up to attack by the next higher echelon while still keeping the large AO for subsequent maneuver. With this in mind I think that III Corps' and Korea's combined use of the FSCL and the DBSL will facilitate current and future deep operations. I can see the need for two standard lines, the (new) FSCL and the DBSL.

The FSCL would be used in the traditional sense, and in linear environments would separate the division deep battle from the corps deep battle. The positioning of the FSCL would be anywhere from 25 Km to 100 Km in front of the FLOT depending upon

the assets available to the division, and the enemy situation. The area between the FSCL and the DBSL would be the responsibility of the corps. The DBSL may be the same as the forward boundary, but it could be pulled in short of the forward boundary to facilitate the open engagement of targets by multiple joint sources (figure 2).

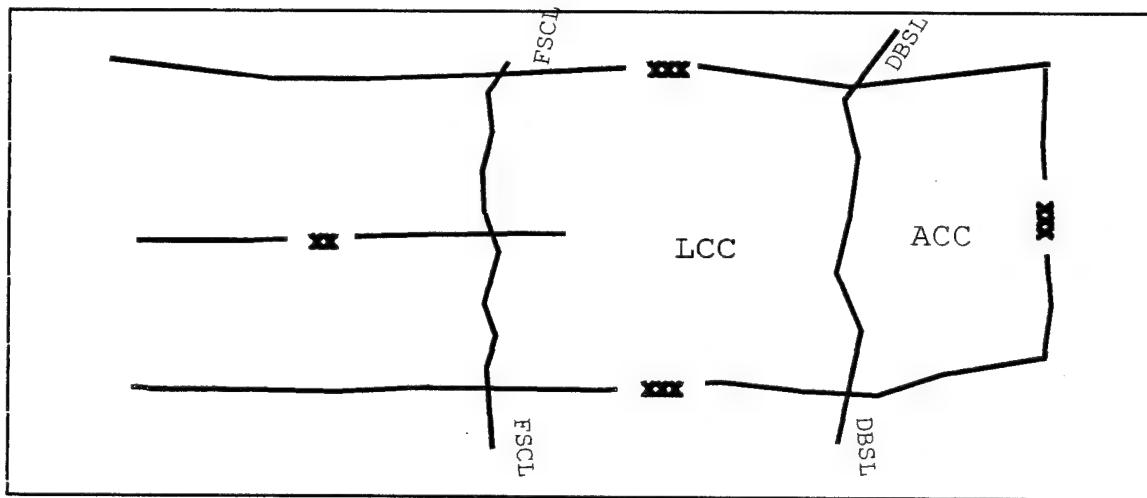


Figure 2. Fire Support Coordination Measures

The DBSL would be beyond the FSCL out to the maximum range of corps weapons system. The size of the division deep battle and corps deep battle would depend upon the situation, and guidance from the joint force commander. The positioning of the FSCL and DBSL would be a balance between the ground commander's desire to control the shaping of the enemy in front of him, and the desire to expedite the rapid engagement of targets by higher echelon forces. In defensive operations the FSCL and DBSL would be pulled in closer. This would shrink the area the Army forces defended

in, allowing the Air Force to control a larger interdiction area. It would also eliminate the possibility of dead space that the ground forces could not adequately cover with their acquisition assets. In offensive operations, the FSCL and DBSL would be pushed further out as the ground commander used the deep battle to set the conditions for upcoming offensive operations. Here control is important as the commander is interested in the destruction of specific target sets.

These coordination lines would be used in conjunction with forward boundaries to facilitate the execution of the deep battle. In linear operations their use would be relatively conventional. Their advantage over the forward boundary is that they allow for more flexibility in planning. In non-linear operations their use would more clearly depend upon the situation. In the Sandia example, the division and corps are fighting separate deep battles divided by a major terrain feature and unit boundaries. In this case a FSCL would not be required. Additionally, since the operational area is only about 200 kilometers long, there would be no requirement to establish a DBSL, unless the JFC wanted to give the ACC a portion of the island to conduct aerial interdiction of targets. With the desire to limit collateral damage, and the limited size of the area of operations, the JFC would most likely assign the area to the corps, and the Air Force would provide support through the Theater Air Ground System (TAGS).

What Does the DDOC Accomplish for the Division?

The modern force projection environment is complex. With the increased emphasis on the integrated operation of joint forces down to the division level, the DDOC is the focal point for translating joint capabilities into the defeat of enemy forces to support the joint force commander's intent and concept of the operation. The DDOC links deep fires to maneuver, determines requirements for joint intelligence collection efforts, and coordinates deep attack of targets with internal and joint assets. It is responsible for the synchronization and coordination of deep attack by fire.

With force projection operations, synchronization can become increasingly important as divisions are deployed independently to accomplish operational and tactical missions. While the Somalia mission for the 10th Mountain Division was not a warfighting mission per se, the future deployment of a division as the ARFOR headquarters a combat situation is very likely. Among others, XVIIIth Airborne Corps' divisions conduct command post exercises to accomplish this task. Although extended major operations would most likely result in the deployment of a corps headquarters, divisions have the capability to deploy and fight as the ARFOR headquarters. Deployment of the relatively small division is based on our ability to successfully fight a deep battle to set up a successful close fight, or even avoid a close fight by defeating the enemy with superior firepower. Previously an economy of force operation in terms of people and resources,

the deep battle is becoming an increasingly large part of the division fight. This trend will continue as we move to the future, and according to the concept for Force XXI Operations and the Mobile Strike Force, deep battle will be the primary battle.³⁸ The division deep operations cell that does this for the future division must evolve with our doctrine.

In force projection operations and particularly in the non-linear environment, the DDOC has a continuous task of accomplishing the commander's intent for the deep battle. Executing attacks both simultaneously and in depth requires detailed coordination of assets. This includes identification of high payoff targets, control of intelligence assets to acquire targets, reconnaissance by a UAV to confirm and track targets, nomination of missions for close air support, coordination for attack helicopters, and airspace C2 for ingress and egress. It also includes coordinating Air Defense Artillery, SEAD for protection of assets including electronic airborne SEAD, electronic warfare to suppress enemy C2 and to limit their ability to respond, ATACMS SEAD including approval for mission and coordination of airspace for ATACMS, coordination of cannon and MLRS fire if in range, synchronization of artillery attack with air attack, and, finally, battle damage assessment to ensure that the attack achieved its purpose. This complexity is multiplied as the DDOC attempts to conduct simultaneous attacks to defeat the enemy.

There are two ways to deal with this increasingly large and complex mission. In the short term, the Army must dedicate the additional people needed to meet the requirements. In the long term, we must develop command, control, and communications systems that enable the same mission to be accomplished with fewer people. The addition of more people to the DDOC, which is becoming increasingly common, is something commanders can influence. In the 1990 FM 71-100, a deep fires cell is not specifically mentioned. The July 1994 initial draft of FM 71-100 discusses how deep operations are conducted out of the G3 operations cell, but then discusses the deep operations coordination cell. It states that "...making deep operations work requires the full-time (24 hour) efforts of several people (DIVARTY, G3 Plans, G2, and AVN). Additional assistance from other staff agencies (DFSCOORD, EWO, ADAO, ALO, G3 Air, PSYOP, and ADE) are included as required."³⁹ This author would argue that this is already out of date. If you want to have a successful deep battle in today's environment, you have to have the people specifically dedicated to do the job. The organizations described in FM 71-100 are still built to fight a part-time deep battle as the situation dictates. The new FM has the concept partly right in recognizing that the DDOC must be a full time (24 hour) cell, but does not dedicate the personnel to do the job. The doctrinal need for additional personnel exists. The specific requirements need to be established so the personnel are added to the force structure.

One solution to the problem of staffing the DDOC is described in a Field Artillery article on 2AD's deep fires cell. What 2AD did was staff their deep operations cell with two sets of personnel. The first is a permanent full-time set of primarily field artillery and aviation personnel, a total of nine people for 24 hour operations. The second set of personnel is assembled in the deep operation cell only during the execution phase of deep operations. These are the personnel normally identified in doctrine as conducting the deep battle, the DIVARTY commander, Aviation Bde Commander and the G2, G3 & A²C² representatives. The full-time deep operations personnel take the commander's and G3's guidance and develop and war-game deep operation courses of action. The DDOC's deep focus is a prioritized time-sensitive, phased high payoff target list that is a product of the decision making and targeting process. The deep focus is developed by the DDOC and approved by the chief of staff or commander and sets the priority of effort for all members of the staff involved in deep operations. The DDOC synchronizes the division deep effort with the corps' deep effort, ensuring the simultaneous attack of the enemy throughout the depth of the battlefield. By dedicating the personnel to execute AirLand Operations doctrine, 2AD has the capability to take advantage of modern systems as they become available, and to effectively fight the increasingly large and complex deep battle.⁴⁰ If we are going to push out the forward boundary and become responsible for more terrain, we must have the C2 element that can manage this responsibility. Failure to do

this may, as the Air Force claims, ". . . provide a sanctuary for the enemy between the close battle and the forward boundary."⁴¹

The Future

The increasing complexity of deep operations is a problem that is solved by manpower in the near term, and technology in the long term as technology catches up to our doctrine. New doctrine looks to leverage the technology providing a much more streamlined use of assets. The concepts outlined in TRADOC Pam 525-5, Force XXI Operations, and the Mobile Strike Force concept of a small highly lethal division, are attempts to change our doctrine beyond the DDOC concept of deep fires supporting maneuver. It would be impossible to execute the future deep battle concepts with our current C2 equipment. Automation is key to improving our capability to conduct deep operations in the future.

Automation

One of the systems under development to automate deep operations is the Automated Deep Operations Coordination System (ADOCS). ADOCS provides an advantage over the manual system by communicating digitally with TACFIRE, ASAS-WARRIOR, the Maneuver Control System, Aviation operations elements, and A2C2. ADOCS is also adaptable for use by various task force configurations, joint operations operational elements, or ad hoc force structures. This ability to accommodate flexible integration facilitates deep battle coordination among joint forces, and provides the DDOC with

the ability to rapidly access information, coordinate, synchronize and then pass information to the firing and attack elements.

As we deploy with smaller forces, interface between the joint force and national assets will be something that the division will have to be trained to accomplish. Ideally an automated system would make this interface transparent to the user at division level.

Automated processing equipment will significantly improve the capability of the deep operations cell to fight the deep battle. The integration of joint sensor-shooter links in a large non-linear battlespace will challenge the most capable automated system. The detailed coordination and precision required in a non-permissive environment and strict rules of engagement require quick, detailed coordination. Making decisions in this environment will require a highly skilled work station operator with unusual situational awareness.

Firepower and Maneuver

The combat power model emphasizes that combat power is achieved through a combination of maneuver, firepower, force protection, and leadership. The theory is that decisive victory is achieved when all combat elements are violently brought to bear quickly, giving the enemy no opportunity to respond with coordinated or effective opposition.⁴²

If we move to the Mobile Strike Force concept where the modernized equipment gives us the capability to find and fight the

enemy at extended ranges, we are buying into the Air Force's theory that you can win wars with firepower, and ground maneuver is not required or only required to pick up the pieces. The US military does not give our technologically inferior adversaries much credit by assuming that they are incapable of reacting to our actions. If Viet-Nam taught us anything, it taught us that technological superiority does not always win. Perhaps, giddy from our victory in the Gulf and pushed forward by contractors promising the world, we rush towards technology as the solution to our problems.

Its too easy to ignore the difficulties of providing near perfect intelligence against an enemy force that knows what we are capable of and is determined to defeat us. Unless the enemy force is operating in the desert where there is nowhere to hide, we will not be as effective as we are led to believe. A good example of this is the UAV; a great weapon for finding enemy forces at NTC, but not so great if the enemy force is underground, in the shade, underwater, or in the jungle or forest. Those limitations restrict effective employment in most areas of the world. Even if we do find the enemy, there is no guarantee that we can kill him. Just as there are countermeasures to heat seeking missiles and magnetic mines, there will be countermeasures to "brilliant" munitions. While modern weapons will make war much more costly and difficult for an enemy force, history tells us that we are not going to be able to defeat our adversaries with firepower alone. The division will still have to maneuver and engage the enemy in a

close fight to achieve victory. What this means for the division deep operations cell is that it will not have the luxury of combining the current C2 structure into one small cell that relies on technology and firepower to defeat the enemy force. The increasing reliance on technology and firepower will result in the continued shift of resources from the focus on current and future close operations to deep operations. Do not expect that the Army will find the great reductions in staff that we are discussing for future division staff organizations. Based on my experience with advanced systems, they will greatly improve our ability to find and kill the enemy, but at a cost. The cost of advanced technology and a much larger battlefield is increased complexity. The role of the deep operations cell will be greater and require more resources. We see this trend even now as divisions and corps devote more of their limited resources to fight the deep battle.

The deep operations cells are the link between industrial age warfare and informational age warfare. How far we go with informational age warfare is not important as long as we retain a technologically superior military that is capable of decisive victory in any environment. With the division increasingly responsible for a larger battlespace, the deep operations cell leverages new doctrine and technology to maintain our military superiority. As we evolve towards the Force XXI concepts of purpose-based battle fought by rotating integrated staff elements, the deep operations cells become the vehicle to make the transition. As we bring new technology on line, it requires that

more resources are dedicated to the deep battle cell because the division and corps fight is focused on protecting our forces by engaging the enemy ever further from our front line of troops.

The last part of the combat power model is leadership. The Army's leadership has recognized the evolution towards information age warfare, and our doctrine is being modified accordingly. At division level, the DDOC is the fulcrum for the leveraging of technology to improve our combat capabilities. The increased emphasis on the deep battle reflects the application of leadership to effectively use firepower, maneuver, and protection to destroy the enemy.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

The Environment in Which Divisions Operate has Changed

The divisions operate in a complex environment. The structurally reassuring linear battlefield is becoming increasingly nonlinear. This is due both to the different threats, and to weapon systems that go outside the bounds of the conventional linear battlefield. This environment requires a DDOC that can react to a fast-moving, complex battle. As the post-Soviet Union world comes into focus, the type of force that the US will most likely fight also changes. The transition from Industrial Age armies who employed multiple echelons in a predictable fashion, has been to Information Age armies who will employ small, fast, and lethal forces in unpredictable ways. The US Army division can meet that new use of force successfully. It has sufficient resources to protect itself, decisively defeat enemy forces, and manage the multitude of modern acquisition and attack assets, yet is small enough to deploy quickly, and react in a fast moving environment. The division can conduct deep and simultaneous attack throughout the depth of the battlefield, and synchronize multiple assets to leverage the combat power of the entire joint force. This capability is suited for the challenge of the nonlinear battlefield in which the division must operate

over large areas as the enemy forces disperse to avoid detection and destruction.

The Changes in the US Military Forces have Changed the way a US Army Division Conductes Deep Fires

The equipment developed to support AirLand Battle is beginning to change the way we fight. Acquisition systems such as the UAVs and JSTARS give real time and near real time target acquisition. The combination of multiple, joint acquisition assets has the potential to give the commander a near-perfect picture of the battlefield. With advanced delivery systems, the commander can see and destroy the enemy quicker and at greater ranges than ever before. Because these systems are now available to the division, the DDOC now has the capability to conduct an operational level battle, where previously its role was limited to the tactical battle of setting up the close fight for success. Because the division is lethal, deployable, and has the capability to effectively employ modern acquisition and attack systems at operational ranges, the division is ideally suited for force projection as the ARFOR in joint operations. The DDOC gives the division the flexibility to fight operational level battles for the JFC while at the same time controlling the close fight. While the Army divisions are beginning to see these types of operations, this potential flexibility is a very complex task for the division. The DDOC needs to be staffed to accomplish the 24 hour missions implicit in this flexibility, and the divisions need to

practice operating as the ARFOR headquarters in simulation exercises.

Despite the rapid changes in environment, and the complexity of modern warfare, the US Army's doctrine is leading the change. The 1993 version of FM 100-5, TRADOC Pam 525-5, and the draft division and corps manuals all provide a true azimuth to the future. It is only in describing the extent that the division will operate autonomously, and in documenting the need to expand the deep operations cells, that the doctrine falls a little short.

The Role of the DDOC has Changed

The change in the role of the DDOC is a result of dramatic changes in both our military and the environment which we operate in. In this environment, the relationship between the division, and higher or adjacent units also changes. The division is less likely to operate within the linear battlespace of the corps. If operating under a corps headquarters, the division will most likely be conducting purpose-based operations that complement, but occur separately and independently of the corps deep operations. The matching capabilities of the division and the corps do not compete with one another in the same physical space because of the large battlespace, and the separation of effort.

The DDOC, however, does have to deal with more frequent and more complex relationships with joint forces. As the ARFOR headquarters (or where operating independently from corps), the

DDOC coordinates and integrates joint assets to accomplish JFC objectives. Overmatching joint capabilities cause conflicts for control of the deep battle, as each service attempts to defeat enemy forces in a way that best suits their doctrine and tactics. One of the ways to mitigate these conflicts is through the use of fire support coordination measures such as the FSCL, forward boundaries, and the DBSL.

As the Army gains more ability to fight deep, it seeks to control larger areas in which to destroy the enemy force. Army commanders need permissive fire support coordination measures to facilitate the quick attack of identified enemy forces. At present, the requirement to inform all affected commanders prior to firing across the FSCL limits permissive attack. The DDOC has a role in overcoming this problem, but it must manage the deep fire support coordination measures, to ensure that the most effective force can permissively attack targets. Army commanders will want to avoid restrictive measures in the deep battle that limit the joint force's ability to conduct simultaneous attacks throughout the depth of the enemy force before it can react.

The DDOC also sets the conditions to ensure success in the close fight, when there even is one. With the lethality of modern weapon systems, the close fight will be very costly in terms of men and equipment. The DDOC decreases the cost by synchronizing the joint attack of the enemy force to ensure its defeat. As more systems are available and the battlespace becomes larger, the task for the DDOC is increasingly difficult. Automation provided

through the fielding of the ADOCS will greatly improve the ability of the DDOC to synchronize the deep fight. This will also require the assignment of additional personnel to operate the ADOCS.

Given our increased focus on the deep fight, its importance to the joint force, and its increasing complexity, this researcher thinks that we must dedicate sufficient personnel and equipment to the DDOC to ensure success. With the changing role of the DDOC, I have the following recommendations.

Recommendations

The Army is on the right path to take advantage of modern technology and achieve decisive victory in future conflicts. To continue successfully down that path, the Army must recognize the changes that this technology brings and adjust accordingly. These recommendations are some of the things that this author sees as important to help the Army adjust to rapid change.

The Army should add some additional personnel to the DDOC to support current missions. These personnel would be required until the full suite of future command, control and communications systems are fielded. As we put more focus on the deep battle, the additional personnel ensure that we continue to improve our ability to fight deep. Under-staffing the DDOC only ensures that we will not take full advantage of new technology and doctrine. Although adding additional personnel will be difficult, it must be done. We are in a period of transition from manual to computerized planning and execution of the deep battle. Until we complete that transition, the DDOC will be overworked as

computerized systems dump vast amounts of information into a manual process.

The Army should continue to pursue the automated systems that integrate the multitude of command, control and communications systems operating within the army and joint forces. The ADOCS system is a step in the right direction. The trend towards a non-linear battlefield continues to increase the complexity of deep operations. Computerization may not reduce the workload, but can make it manageable.

The Army should focus division doctrine to emphasize the growing trend toward the predominance of the deep battle in division operations. The doctrine should recognize that in some situations, the deep battle will be decisive. This is a recognition that with modern acquisition and attack systems, the deep battle may now have the capability to accomplish the commander's intent, and a costly close battle will be avoided. On the large, non-linear battlefields that we expect to see in the future, the division may fight an operational level fight to accomplish the joint force commander's intent.

The concept of the division operating as the ARFOR needs to be addressed in doctrine. There is an increased probability that in a force projection army the division will be the first army force on the ground, and will have to operate as the ARFOR headquarters. This is important to the DDOC as it greatly increases the complexity of deep operations. Divisions must be

trained to fight as the ARFOR headquarters in theater force projection operations.

We should simplify the battlefield framework and just use the term "battlespace" to define the battlefield. The assumption that the deep battle is predominate, and the non-linear battlefield, change the way we look at the battlefield framework. If we are able to defeat the enemy force forward of the FLOT, we no longer have a need for the old battlefield framework of close, deep and rear. The dominance of deep is such that security, close and rear are all tied into the successful execution of the deep battle. The battlespace becomes one whole in which you use the resources at hand to accomplish the commanders intent. The focus on non-linear battlefields, reduces the need for the linear close, deep and rear framework. By replacing this framework with battlespace, the planning focus would be on the commander's intent rather than establishing a linear segmentation of the battlefield.

We should use the FSCL as a permissive fire support coordination measure, and use some other graphical control measure to delineate between the land commander's and air commander's battlespace. It would be useful to have a distinct measure that identifies this separation. The DBSL and RIPL serve that function and should be added to doctrine as acceptable alternatives to the forward boundary.

Suggestions for Further Research

There are many interesting collateral issues on the subject of deep fires that warrant further study. One of the most

interesting is the role of the DDOC when the division main effort is the deep battle. Another issue is determining the appropriate mix of personnel for the DDOC. How many personnel will it take to operate the future DDOC, and what grades and branches would best facilitate future operations? How will automation affect the division's ability to conduct deep fires?

The relationship between the division as the JFLCC and the JFACC could use more study. The doctrinal relationships that have been established only clarify the relationship when the division is subordinate to the corps.

The emphasis on deep battle, and the multitude of deep acquisition and attack systems make the deep battle increasingly complex. Studying ways to facilitate the synchronization and rapid execution of the deep battle would be very beneficial.

ENDNOTES

Chapter One

¹U.S. Army, FM 100-5, Operations, (Washington: Department of the Army, 1993), 6-2.

²COL John W. Reitz, interview by author, notes, Fort Leavenworth, Kansas, 16 Nov 1994.

³U.S. Army, Field Artillery School, "White Paper, Joint Fire Support and Interdiction: Conduct of Operations between the FSCL and Forward Boundary," (Fort Sill, OK: U.S. Army Field Artillery School, 1993), 36.

⁴U.S. Army, Joint Publication 3-0, Doctrine for Joint Operations (U) (Washington: Headquarters, Department of the Army, September 1993), III-48.

⁵Ibid., IV-11.

⁶Ibid., IV-11 to IV-12.

⁷Ibid., III-34.

⁸U.S. Army, FM 100-5, Operations, (Washington: Department of the Army, 1993), 3-1.

⁹Ibid., Glossary-2.

Chapter Two

¹⁰Richard E. Simpkin, Race to the Swift, (London: Brassey's, 1993), 243.

¹¹Toffler, Alvin and Heidi, War and Anti-War, (Boston: L&B, 1993), 33-51.

¹²TRADOC Pam 525-5, Force XXI Operations, (Fort Monroe, VA: Department of the Army, 1 August 1994), 2-9.

¹³U.S. Army, FM 100-15, Corps Operations, (Washington, D.C.: Department of the Army, 1 September 1989), 3-0.

¹⁴U.S. Army, FM 71-100, Division Operations, (Washington, D.C.: Department of the Army, 1 June 1990), 1-5.

¹⁵Douglas A. Macgregor, "Future Battle-The Merging Levels of War," Parameters XXII (Fall-Winter 92-93): 33-47

¹⁶Thomas Garrett, "Close Air Support: Which Way Do We Go?" Parameters 20 (December 90): 29-43.

¹⁷General Frederick M. Franks, Jr., "Full Dimensional Operations: A Doctrine for an Era of Change," Military Review, LXXIII (December 93) 8.

¹⁸MG Fred F. Marty, "Deep Operations," Field Artillery, (April 93): 1.

¹⁹LTC Jerry C. Hill, "Shaping the Battlefield- Deep Operations in V Corps. An interview with LTG Jerry R. Rutherford, Commanding General V Corps," Field Artillery, (April 93): 7.

²⁰Peter S. Corpac, "Airland Battle Future: Fires, How Do You Do it?" (Thesis, Naval War College, Newport, RI, 1991), 45.

²¹Mark J. Eshelman, "Ground Commander Control of Battlefield Air Interdiction", (Masters of Military Arts and Science Thesis, U.S. Army Command and General Staff College, 1992), 57.

Chapter Four

²²Toffler, 64.

²³Franks, 9.

²⁴FM 71-100, 1-5.

²⁵FM 100-5, 6-14.

²⁶FM 71-100, 1-7.

²⁷Ibid., 1-6.

²⁸Ibid., 1-6.

²⁹U.S. Army, Tradoc Pam 525-5, Force XXI Operations, (Fort Monroe, VA, Department of the Army), 2-9.

³⁰Ibid., 2-9.

³¹Ibid., 2-8.

³²LTC Bill Rittenhouse, "Fire Support on the Non-Linear Battlefield: The Shape of Things to Come." Field Artillery, (October 1990): 35.

³³Franks, 8.

Chapter Five

³⁴COL Thomas A. Cardwell III, "One Step Beyond-Airland Battle, Doctrine Not Dogma," Military Review LXIV (April 1984): 48.

³⁵U.S. Army, Joint Pub 3-0 Doctrine for Joint Operations, (Washington, D.C.: Government Printing Office, 1993): III-48.

³⁶Ibid., III-48.

³⁷COL Neil E. Nelson and MAJ Thomas A. Kolditz, "RAIDS-Fire Coordination for Aviation in the Deep Battle," Field Artillery, (February 1995): 24.

³⁸U.S. Army, Tradoc Pam 525-5, Force XXI Operations, (Fort Monroe, VA: Department of the Army, 1 June 1994), 3-11.

³⁹U.S. Army, "FM 71-100 Division Operations," Initial Draft, (Washington, D.C.: Government Printing Office, 1 July 1994): 3-18.

⁴⁰COL Thomas Culling, "Hells Fires Deep: The DOC-An Integrated Approach." Field Artillery, (February 1995): 14.

⁴¹U.S. Army, Field Artillery School, "White Paper, Joint Fire Support and Interdiction: Conduct of Operations between the FSCL and Forward Boundary," (Fort Sill, OK: U.S. Army Field Artillery School, 1993), 6.

⁴²U.S. Army, FM 100-5, Operations, (Washington, D.C.: Department of the Army, 1 June 1993), 2-9.

BIBLIOGRAPHY

Books

Simpkin, Richard E. Race to the Swift; Thoughts on Twenty-First Century Warfare. New York: Brassey's Defence Publishers, 1985.

Toffler, Alvin and Heidi. War and Anti-War. Boston: L&B, 1993.

Articles

Anderson, Randall J., and Charles B. Allen. "The Lightning of Desert Storm." Field Artillery (October 1991): 57-60.

Baker, Caleb, "AirLand Battle Future." Air Force Times 50 (19 March 1990): 14.

Cannon, MAJ Michael W., "The Division Deep-Battle Targeting Cell: Thor's Hammer or Rube Goldberg Device?" Field Artillery (April 1991): 44-49.

Cosby, CPT William N., "BCTP Lessons Learned--Battlefield Air Interdiction." Field Artillery (April 1990): 40-42.

Cushman, John H., "Fight as a Team." Proceedings 119 (January 1993): 58-62.

COL Thomas A. Cardwell III, "One Step Beyond- AirLand Battle, Doctrine Not Dogma," Military Review LXIV (April 1984): 48.

DeSosa, MAJ Max, and MAJ Ted Kresge, "Airland Operations: A Concept for the Evolution of the Airland Battle or the Strategic Army of the 1990 and Beyond." Airland Battle Bulletin (September 1991): 3-7.

Duitsman, MAJ Leighton L., "Army TACMS." Field Artillery (February 1991): 38-41.

Emerson, COL Harry M. and LTC Michael T. Edwards, "Deep Operations: A Look from BCTP at the Process." Unpublished. BCTP Team B. Ft Leavenworth, Feb 94.

Fawcett, MAJ John M., "Which Way to the FEBA?" Airland Battle Bulletin (September 1991): 17-18.

Foss, John W., "Airland Battle Future." Army 41 (February 1991): 43-48.

Franks, GEN Frederick M., "Full dimensional Operations: A Doctrine for an Era of Change." Military Review LXXIII (December 93): 8.

Garrett, Thomas, "Close Air Support: Which Way Do We Go?" Parameters 20 (May 1990): 29-43.

Hill, LTC Jerry C., "Shaping the Battlefield- Deep Operations in V Corps. an interview with LTG Rutherford." Field Artillery (April 93): 7.

Jones, LTC Brian W., "Close Air Support: A Doctrinal Disconnect." Airpower Journal 31 (Winter 1992): 60-71.

LeGare, CPT Marc J. "Airland Operations and the Army/Air Force Relationship." AirLand Battle Bulletin (April 1991): 3-8.

Marty, MG Fred F., "Deep Operations." Field Artillery (April 1993): 1.

McDonough, COL James R., "Building the New FM 100-5--Process and Product." Field Artillery (April 1992): 11-15.

Macgregor, Douglas A., "Future Battle- The Merging Levels of War," Parameters, XXII (Fall-Winter 92-93): 33-47.

Reitz, LTC(P) John W., "Managing Intellectual Change: Army's Revision of FM 100-5." Army 42 (September 1992): 45-47.

Schreyach, COL Jon C., "Deep Attack System of Systems." Field Artillery (December 1989): 48-54.

Silvasy, "AirLand Battle Future: The Tactical Battlefield," Unpublished Article, USA CGSC, Fort Leavenworth, Kansas (January 1991)

Sincere, Clyde J., "Target Acquisition for the Deep Battle," Military Review LXX (August 1990): 23-28.

Von Sandrart, Hans H. "Considerations of the Battle in Depth." Military Review LXVII (October 1987): 8-15.

Walker, William A., "The Deep Battle." Army 55 (July 1986): 26-37.

Government and Military Publications

North Atlantic Treaty Organization. NATO STANAG No. 2934 Artillery Procedures. (n.p., n.d.)1.

US Army. TRADOC PAM 525-5. Force XXI Operations. Fort Monroe, VA: Department of the Army, 1994.

_____. Corps Deep Operations--Tactics, Techniques, and Procedures Handbook. Fort Leavenworth, KS: Combined Arms Center, 1990.

_____. FM 6-20-10, Tactics Techniques, and Procedures for the Targeting Process. Washington: Department of the Army, 1989.

_____. FM 6-20-30, Tactics, Techniques, and Procedures for Fire Support for Corps and Division Operations. Washington: Department of the Army, 1989.

_____. "FM 90-28, Tactical Air Planning and Employment in Support of Ground Operations," (Final Draft) Washington: Department of the Army, 1991.

_____. FM 71-100, Division Operations. Washington: Department of the Army, 1990.

_____. "FM 71-100, Division Operations." (First Draft) Washington: Department of the Army, 1994.

_____. FM 100-5, Operations. Washington: Department of the Army, 1993.

_____. FM 100-15, Corps Operations. Washington: Department of the Army, 1989.

_____. "FM 100-15, Corps Operations." (First Draft) Washington: Department of the Army, 1994.

Joint Chiefs of Staff, Joint Interdiction of Follow on Forces, Test Pub, Washington: 16 June 1988.

Unpublished Articles

Manuscripts

Bond, William L. Targeting for Army Deep Attack. Unpublished research project, The Industrial College of the Armed Forces, Fort McNair, Washington, D.C., 1992.

Corpac, Peter S. AirLand Battle Future: Fires How Do You Do It? Naval War College, Newport, RI. 1991. (ADA 236 694)

Eshelman, Mark James. Ground Commander Control of Battlefield Air Interdiction. U.S. Army Command and General Staff College, Ft. Leavenworth, KS, 1992. (ADB 168438L-7)

Francis, Edward J. Is current Fire Support Doctrine for the Deep Battle Effective? U.S. Army Command and General Staff College, Fort Leavenworth, KS, 1992.

Lorenze, Oliver E. Tacair and the Army's Deep Operation. Ft.
Leavenworth, KS: School of Advanced Military Studies, USACGSC,
31 December 1988. (ADA215792-4)

Mock, David C. A Look at Deep Operations: The Option of Deep
Maneuver. Ft. Leavenworth, KS: School of Advanced Military
Studies, USACGSC, 31 December 1987.

Pickar, Charles K. Tactical Deep Battle: The Missing Link. Ft.
Leavenworth, KS: School of Advanced Military Studies, USACGSC,
1992.

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